

Manufacturing TODAY

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FROM MISSILES TO MISSION MARS, WALCHANDNAGAR INDUSTRIES IS DOING IT ALL. GK PILLAI, MD & CEO, EXPLAINS HOW HIS FIRM IS FUELING INDIA'S SUPER-POWER DREAMS

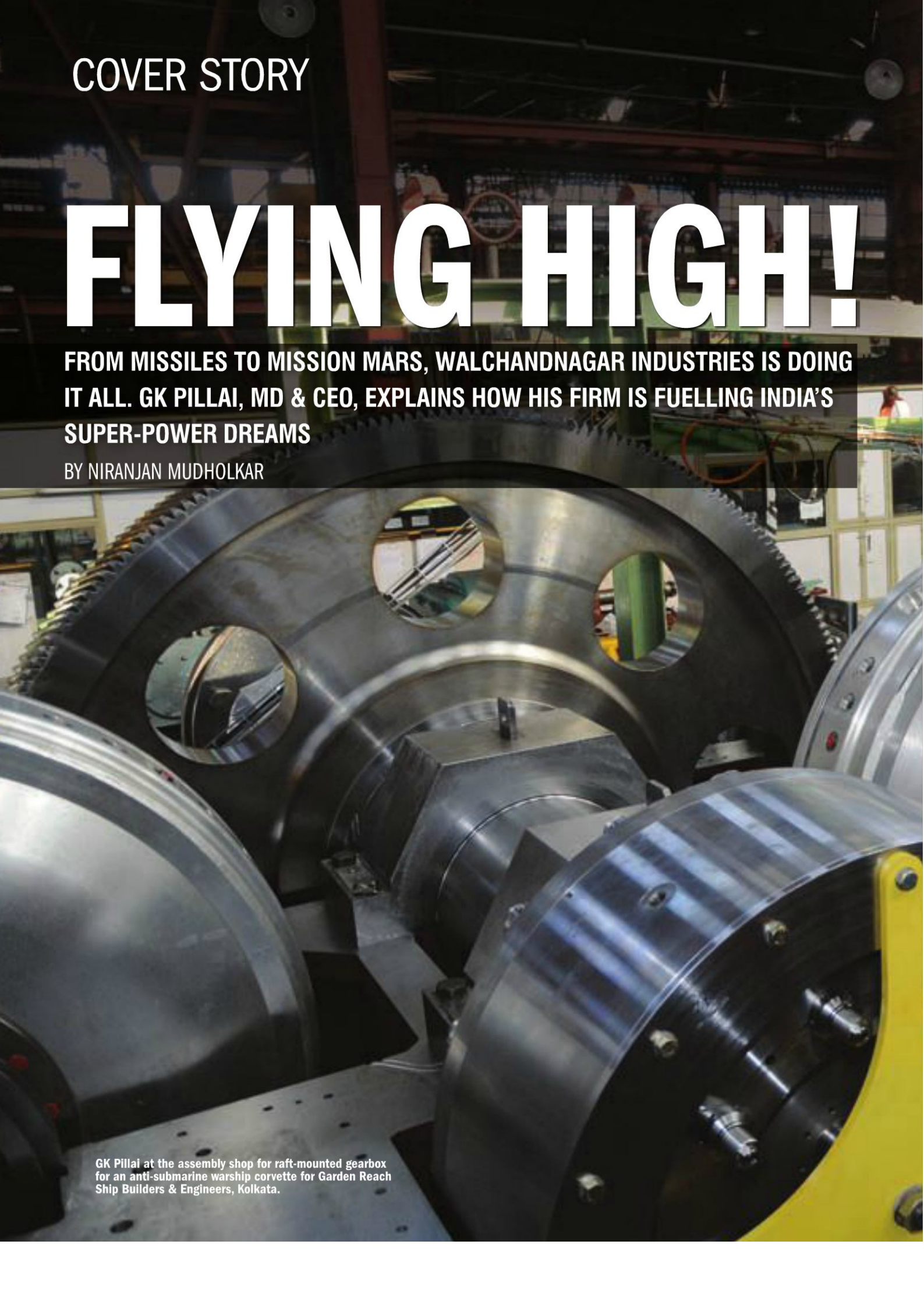


COVER STORY

FLYING HIGH!

FROM MISSILES TO MISSION MARS, WALCHANDNAGAR INDUSTRIES IS DOING IT ALL. GK PILLAI, MD & CEO, EXPLAINS HOW HIS FIRM IS FUELLING INDIA'S SUPER-POWER DREAMS

BY NIRANJAN MUDHOLKAR

A large industrial gearbox assembly in a factory setting. The image shows several large, metallic gears and shafts, with a prominent yellow component in the foreground. The background is a dimly lit industrial workshop with various equipment and structures.

GK Pillai at the assembly shop for raft-mounted gearbox for an anti-submarine warship corvette for Garden Reach Ship Builders & Engineers, Kolkata.



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At the time of writing this story, Mangalyaan, India's first mission to Mars, has successfully completed its first mid-course correction about 2.9 million km away from the Earth. In fact, no Indian spacecraft has ever travelled so far. An Indian manufacturing organisation has been quietly playing a critical role in making this happen. In fact, this firm – Walchandnagar Industries Ltd (WIL) – has been a major partner of the Vikram Sarabhai Space Centre (VSSC), which is part of the Indian Space Research Organisation (ISRO). VSSC relies on WIL for the fabrication of the most critical rocket motor casings. And this is not the first time that WIL has been working with VSSC or ISRO.

“WIL have been supplying similar motor casings since 1973. Almost all 25 PSLV (Polar Satellite Launch Vehicle) flights have used WIL manufactured rocket motor casings,” shares GK Pillai, the company's MD & CEO. In fact, considering the ambitious launch program of ISRO, WIL is sure about bigger roles for private players in this programme. Looking at the volume of work and varied technologies involved, Pillai feels, ISRO will be looking for already developed and available infrastructure as well as expertise from private players. He wants to ensure that majority of this comes to WIL's kitty, notwithstanding the tough competition from players like L&T and Godrej. Of course, Pillai and his team are already working on enhancing WIL's manufacturing infrastructure and capabilities. But they know that their biggest challenge will be transforming the mindsets at this 106 years old organisation.

Pillai is not new to changing the approach of organisations. That's in fact a key reason why he came to WIL. Known to be a 'turnaround man', Pillai comes with a rich and diverse experience in both the public sector and private sector. His last stint was with

the Heavy Engineering Corporation, a PSU that started delivering profits from being a sick one, after Pillai brought in some positive changes. Now, his job is to take WIL to the next level. “The legacy of WIL is both its strength and weakness,” he says. And he is right. Where else would you find several examples of three generations of a family working in the same company? Where else would you find huge machines and equipment that are more than 30 years old still functioning to their optimal performance?

Pillai is well aware of the task he has at hand. He knows that a Greenfield development is relatively easy; bringing changes on a large scale at a very old (and big) organisation is always challenging. “For example, we have many critical and complex equipment whose manufacturers have long quit the business,” Pillai says. Maintaining these large legacy equipment is not easy; when components become non-functional, their replacements have to be built in-house. Moreover, aligning the older machines with modern technology is quite challenging. “There are quite a few advanced machines that have come to India only because of WIL,” he says.

While WIL can easily boast of having some of India's senior-most and finest engineers on its payroll, getting the newer generation of engineers to work at Walchandnagar, one of India's oldest industrial townships, located at a seven-hour drive from Mumbai and a three-hour drive away from Pune, is quite difficult. “The place is far from interesting from the lifestyle perspective for the younger generation,” Pillai says matter-of-factly. Plus, many people working here have been used to a certain work culture for decades. “Getting them to accept fresh ideas is tough,” he adds. “But one thing that can bring the old and new together – and also the key reason why WIL is an important player in a niche

56,000
M²

AREA UNDER CRANE AT
THE WALCHANDNAGAR
MANUFACTURING
FACILITY



Machining of girth gear flange on Bertram VTL for Niger Cement, SA for 1,500 TPD Clinker/ 2,000 TPD cement plant.



Booster motors casings after heat treatment- ready for final machining (AKASH Missiles project).



India needs a new manufacturing revolution for sustained development and growth. This can be ensured through restructuring of higher education, making it innovation-centred and more investment in R&D."

segment – is its strong focus on engineering excellence. That's the principle on which Seth Walchand Hirachand – the founder of WIL – created the base of this organisation, and we are further building on it. Another equally important principle that we follow is that of patriotic industrialisation. We believe we are building India's DNA and that keeps us going," he says with pride. DNA? "Well that stands for Defence, Nuclear and Aerospace," he quickly explains. In fact, the bulk of WIL's revenues still comes from supplying equipment to the sugar and cement industry. "The DNA segment is not our *dal-roti* (bread and butter) business but it is still a big focus for us," he adds.

So even when the United States imposed sanctions on WIL for its role in India's nuclear programme, WIL did not quit this business. "We learnt important lessons from it," says Pillai. The sanctions had impact on two areas, material supplies and design & engineering. WIL couldn't source some critical materials such as low-cobalt content stainless steel from the regular international suppliers as it required end-user certificate. "But we could find alternate suppliers and get on with the work. Similarly, we found alternate sources for other critical equipment and I&C (Instrumentation & Controls) components."

Another positive impact of the US sanctions was seen on the capabilities of Indian industries in certain segment. Earlier low alloy and big size stainless steel forgings couldn't be done in India so companies like WIL had to depend on foreign vendors for these. However, Indian industries are today geared up to produce these items in India. Similarly, in the case of design, engineering, software and hardware supplies / assistance, end-user certificates were required. So WIL was denied supplies or assistance



Raw mill & Cement mill in cement machinery fabrication shop for Niger Cement, SA for 1,500 TPD Clinker/ 2,000 TPD cement plant.



Pillai near the 700 MWe calandria for RAPP-8 ((Rajasthan Atomic Power Project) of Nuclear Power Corporation of India Ltd.

due to the sanctions but WIL rose to the occasion and did work with indigenous efforts. "We have learnt a lesson that building up technological capability is essential for survival and growth of the company, and we need to develop technological capabilities. So these sanctions have actually boosted our indigenous efforts" says Pillai.

Being associated with nuclear and space programmes requires working with difficult materials as well as sophisticated machinery, complying with various international codes and inspection requirements.

How has WIL built these capabilities in terms of equipment as well as know-how? The journey has been a gradual one. "WIL started its stint in the field of space and nuclear technology by manufacturing smaller components of the reactor and then gradually went on to manufacture major core equipment of nuclear power plants like the calandria, end shields and many others."

The organisation's close association with government agencies like the Department of Atomic Energy, DRDO and ISRO for more than four decades has also helped in gaining technological expertise. Catering to niche segments has made WIL follow strict and stipulated guidelines to work on. "So establishment of a manufacturing facility in line with the requirements of nuclear fabrication was crystal clear. And having the brightest of the brains in the industry added a cherry on the cake, which helped in complying with various international codes and inspection requirements and establishment and utilisation of the manufacturing facility," he says.

WIL's team is constantly evolving and enhancing its manufacturing capabilities by adopting the latest technologies. Moreover, it has international technology partners like Foster Wheeler, ATEC, UBE, Kawasaki, P&H Minepro Services, Earth Technica Co.

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Ltd, Magotteaux, Atomstroyexport, and Masson Marine DCNS. "This ensures that there is no hurdle in carving the final stone of the job. WIL is keeping continuous eye on and adopting the latest technologies from across the globe," Pillai adds.

With more foreign players entering the Indian nuclear scene and seeking partners for local manufacture will also have a positive impact on WIL's manufacturing capabilities. Pillai agrees. "The major players in nuclear business such as AREVA, Westinghouse, GE, Atomstroyexport & Atomenergomash, AECL, Doosan, Vitkovice, Onet and so on have been active in India since 2009. Having visited and assessed WIL's facilities for manufacturing, design, engineering capabilities, many of these players have already approved of WIL's capabilities," Pillai says. Some of them have already worked with WIL for design and engineering while some also have ties up with WIL. "But with the Indian nuclear programme not taking off as expected, these efforts are now held in abeyance. But new companies are still approaching us for partnerships with an eye on the future," he adds.

Pillai is sure that all this will help build up WIL's design, engineering and manufacturing capabilities with more indigenisation happening. Further, he is also sure that with the help of foreign partnerships, WIL can export not only in the nuclear business but also in other areas like thermal power plants and so on. "Joining hands with foreign players for the manufacturing is definitely going to be beneficial for WIL. It will help us to gain larger market share and give us a global exposure in the nuclear arena. To cater to those potential markets, we are developing a new and enhanced facility at Dahej in Gujarat."

So does Pillai see Indian defence manufacturing evolving in the near future with regards to the private sector? And what role does he see WIL playing in this segment? "With the latest announced Defence Procurement Procedure (DPP), the Defence Ministry has given special consideration for indigenous manufacturing. This has definitely opened various new avenues for the private sector. As far as technologies and capabilities are concerned WIL has already carved its name in defence manufacturing. Now, we intend



Pillai near the Hofer Rapid 2500 Gear grinding machine used for large sized outside and internal tooth profile grinding to DIN 1 quality.



Final integration of sustainer, booster motors and fairing fitment (AKASH Missiles project).

to leverage on this to contribute at a bigger scale," Pillai says.

Speaking in terms of India's defence manufacturing capabilities in general, Pillai says that the Indian industry has to upgrade its manufacturing infrastructure and technologies to meet the demanding and stringent requirements of the defence sector. "Secondly, most of the equipment requires assured supply of exotic raw materials. Efforts to indigenously develop these materials are already on through PSUs and some private manufacturers. WIL is constantly engaged in technology development / refinement and building necessary infrastructure for the same," he informs.

While acknowledging that India has its feet on the road to becoming a global manufacturing hub, Pillai also draws attention to the fact that the country is still importing over 70% machine tools, 70% defence requirements and 90% modern telecommunication items. "In such a scenario, India needs a new manufacturing revolution for sustained development and growth. This can be ensured through restructuring of higher education, making it innovation-centred and pumping more investment in research and development. Moreover, implementation of new manufacturing techniques, formulation of favourable statutory policies to prompt heavy investments would also benefit India to become a manufacturing powerhouse. Indigenisation in defence sector would further strengthen India as manufacturing powerhouse," he says. ■

WIL's manufacturing capabilities*		
Heavy engineering	Precision instruments	Foundry
Walchandnagar (Maharashtra)	Dharwad (Karnataka)	Satara (Maharashtra)
Area under crane: 56,000m ² Crane capacity: up to 150 Tonnes Strong technicians' teams generate five million hours per annum Dust free halls for critical assembly Sophisticated welding systems for exotic material Large size furnaces with data acquisition systems ASME certification for NB, R, S, PP, and U stamps.	Area under shed: 2,220m ² Manufacturing facility for pressure and temperature gauges, various instruments. Plant comprises of automats, hobbing machines, press shop, heat treatment facility, testing lab, chemical treatment facility and tool room.	Excellent product related infrastructure, pattern shop, machine shop and metallurgical lab. Cranes used in foundry range from 2 to 35 ton. Liquid metal capacity is 1,200 t / month. Spread over an area of 38 acres.

*WIL is also working on a shore based facility at Dahej (Gujarat). This will house the manufacturing of heavy and critical equipment in the field of nuclear and defence such as nuclear steam generators, pressurisers and other Class I & II components for heavy water and fast breeder reactors.